

REMARKS

Claims 1-5, 7 and 9 are pending in the above-identified application.

Removal of Claim Objection

Claims 6 and 8 have been objected to under 37 CFR 1.75 as being redundant with respect to claims 1 and 4, respectively. Claims 6 and 8 have been cancelled so as to remove the basis for this objection, which should be withdrawn.

Issues under 35 USC 103(a)

Claims 1-9 have been rejected under 35 USC 103(a) as being unpatentable over Sakamoto '049 (USP 6,201,049) in view of JP '851 (Japanese Published Application No. 58-3851) and the "Admitted Prior Art" (page 9, line 23 to page 10, line 2 of the specification) and optionally at least one of Lickes '378 (USP 6,426,378) and Agostini '691 (USP 6,521,691). It is noted that claims 6 and 8 have been cancelled, as indicated above.

Summary of Position Stated in Final Office Action

The position stated by the Patent Examiner in the Final Office Action dated December 12, 2005 includes the following two conclusions: (1) Sakamoto '049 discloses the use of the antioxidant N-(1-methylheptyl)-N'-phenyl-p-phenylenediamine ("8PPD") and 8PPD-adsorbed silica is commercially available ("Antioxidant 35-PR"), such that one skilled in the art would be motivated to replace the commercially available 8PPD-adsorbed silica with the antioxidant used in Sakamoto '049 in order to arrive at the present invention; and (2) the comparative test results in the present specification improperly compare Example 2 having two more parts antioxidant against Comparative Example 7 (representative of Sakamoto '049) such that the observed increased ozone cracking can be attributed to the increased amount of antioxidant used, rather than the type of antioxidant used.

After summarizing the advantages of the present invention and discussing additional comparative test evidence presented for consideration by the Examiner, each of these conclusions (1) and (2) are addressed.

Present Invention and Its Advantages

The present invention is directed to a pneumatic tire which includes a thin film layer containing a compound obtained by adsorbing N-(1-methylheptyl)-N'-phenyl-p-phenylenediamine ("8PPD") to silica, as recited in claim 1 for example. As noted at page 5, lines 7-13 of the specification, employment of 8PPD-adsorbed silica advantageously provides for high ozone cracking resistance over a long period of time.

Comparative Test Evidence in Specification

This advantage is evidenced by the comparative test results shown in Table 1 at page 13 of the specification and further discussed on page 14 thereof. First, note that in Comparative Example 7 that antioxidant "C" (8PPD not adsorbed on silica) is used and results in an ozone cracking resistance measurement of 3.5. The Final Office Action indicates that Comparative Example 7 is representative of Sakamoto '049. In contrast, in Example 2 (an embodiment of the present invention), antioxidant "D" (8PPD adsorbed on silica) is used and results in an advantageously improved ozone cracking resistance measurement of 4.5. **Please note that the antioxidant "D" used in Example 2 includes 4 parts 8PPD and 2 parts silica, such that the amount of antioxidant is equal to the amount used in Comparative Example 7.** Consequently, it is clear that the employment of 8PPD adsorbed silica results in significantly and advantageously improved ozone cracking resistance property based on these comparative test results.

Otsuki Declaration Evidence

In addition to the above-noted comparative test evidence presented in the present specification, enclosed is a Declaration submitted under 37 CFR 1.132 (hereinafter the "Otsuki Declaration"). The Otsuki Declaration employs silica and 8PPD components but the 8PPD has not been adsorbed on the silica. Experimental Example 1 of the Otsuki Declaration shows and ozone cracking resistance measurement of 3.5 which is disadvantageously poorer than the measurement of 4.5 for Example 2 (present invention) described in the present specification. Thus, Experimental Example 1 of the Otsuki Declaration establishes that the mere presence of silica, in addition to the 8PPD, does not improve ozone cracking resistance properties.

In view of the above it is submitted that the Comparative Test evidence provided in the present specification, in combination with the evidence in the Otsuki Declaration, establishes that the use of 8PPD-adsorbed silica provides for unexpected, advantageously improved properties in connection with the present invention.

Response to Position (1): Absence of Basis to Combine References

Sakamoto '049 discloses a rubber composition used in tire sidewalls which may employ "OZONONE 35" which is 8PPD as noted at column 4, line 23. Sakamoto '049 further discloses that there is components, including antioxidants, may be "blended" with the described rubber composition (col. 3, lines 43-49).

Sakamoto '049 fails to disclose or suggest the use of 8PPD-adsorbed silica as in the present invention. Thus, significant patentable distinctions exist between present invention and Sakamoto '049.

The "admitted prior art" disclosed at pages 9-10 of the present specification includes the commercial product "antioxidant 35-PR" which is 8PPD-adsorbed silica.

The "admitted prior art" fails to include any suggestion of employing the 8PPD adsorbed silica in a thin film layer formed on the buttress of a tire, as required by the present invention. Thus, significant patentable distinctions exist between the present invention and the "admitted prior art".

In addition to the above, it is noted that there fails to be any basis for a motivation for one skilled in the art to employ the commercially available 8PPD-adsorbed silica mentioned in the present specification in a tire sidewall rubber compositions as described by Sakamoto '049. Since Sakamoto '049 fails to make any distinction with regard to whether 8PPD adsorbed on silica, and since the "admitted prior art" fails to suggest the use of the 8PPD adsorbed silica in a tire sidewall rubber composition, there fails to be an adequate basis for combining these disclosures together in an attempt to obtain the present invention. In fact, it appears the only basis is improper hindsight reconstruction based on the disclosure of the present application, which is prohibited as a basis for combining references together in support of an obviousness rejection. In re Mills, 916 F.2d 680 16 USPQ2d 1430 (Fed. Cr. 1990); MPEP 2143.01, Rev. 2, May 2004, page 2100-131. In addition, both of these cited references fail to recognize the advantageous and unexpected properties achieved with regard to significantly improved ozone cracking resistance properties as evidenced by the comparative test results discussed above. Therefore, significant patentable distinctions exist between the present invention and each of these cited references, whether taken separately or improperly combined.

In addition, these cited references, i.e. JP '851, Lickes '378 and Agostoni '691, are all farther removed from the present invention than either Sakamoto '049 or the "admitted prior art" discussed above. All of these other cited references fail to disclose or suggest the employment of 8PPD-adsorbed silica in a thin film layer formed on the buttress of a tire, as in the present invention. All of the other cited references merely generally suggest that antioxidants be considered for use in tire rubber compositions, but fall short of recognizing the advantageous, unexpected improved properties with regard to ozone cracking resistance achieved by the present

invention which employs 8PPD-adsorbed silica. Consequently, significant patentable distinctions exist between the present invention and all of these other cited references.

Response to Position (2): Evidence of Unexpected Advantages

In response to position (2) stated in the Final Office Action as noted above, it is submitted that the comparative test evidence of the present specification, in combination with the evidence of the Otsuki Declaration, establishes that the use of silica-adsorbed 8PPD provides for unexpected advantages properties, in contrast to 8PPD alone or 8PPD together with silica without any previous adsorption. The comparative test evidence discussed above also establishes the same amount of antioxidant is used in each of Example 2, Comparative Example 7 and Experimental Example 1.

It is submitted for the reasons above that the present claims define patentable subject matter such that this application should now be placed in condition for allowance.

If any questions arise in the above matters, please contact Applicant's representative, Andrew D. Meikle (Reg. No. 32,868), in the Washington Metropolitan Area at the phone number listed below.

Application No. 10/706,044
Amendment dated May 12, 2006
Reply to Office Action of December 12, 2005

Docket No.: 1403-0258P

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: May 12, 2006

Respectfully submitted,

By 

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Enclosure: Otsuki Declaration under 37 CFR 1.132